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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/771,290	02/05/2004	Chandra Mouli	M4065.0556/P556-A	3228
24998	7590	12/16/2005	EXAMINER	
DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP			GUERRERO, MARIA F	
2101 L Street, NW			ART UNIT	
Washington, DC 20037			PAPER NUMBER	
			2822	

DATE MAILED: 12/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No. 10/771,290	Applicant(s) MOULI ET AL.	
	Examiner Maria Guerrero	Art Unit 2822	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 98-126 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 98-126 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is in response to the amendment filed September 20, 2005.

Status of Claims

2. Claims 1-97 are canceled. Claims 98-126 are pending.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 98-101 and 107-123 are rejected under 35 U.S.C. 102(e) as being anticipated by Nozaki et al. (US 6,570,222) (cited on IDS).

Nozaki et al. discloses forming a CMOS image sensor comprising forming a pixel within a substrate and forming an isolation region adjacent the pixel (Fig. 7, col. 8, lines 3-25, col. 13, lines 24-30). Nozaki et al. discloses forming an isolation region around at least a portion of the pixel and forming an isolation gate (13b) over at least a portion of the isolation region (STI) (Fig. 7, col. 8, lines 3-25).

Nozaki et al. also describes the pixel further comprises at least one transistor gate (24b) for transferring photoelectric charges from said photosensitive region (34a, 34b) and wherein said isolation gate is of the same conductivity type one transistor gate; wherein said photosensitive region, comprises a p-type conductivity substrate

Art Unit: 2822

(11), an n-type conductivity photodiode region (15); and a p-type conductivity surface region (21) (column 1, line 35 to column 3, line 35).

Furthermore, Nozaki discloses an active layer of a first conductivity type formed within a substrate (Figure 1); one transistor gate (13a) formed over a portion of said active layer (Fig. 7); a photosensor (34a) formed adjacent said transistor gate; an isolation region (STI) formed in said active layer adjacent to said photosensor; and an isolation gate (13b) formed over at least a portion of said isolation region (Fig. 7); wherein said photosensor comprises a p-n-p junction region formed under said one transistor gate (Fig. 23); said p-n-p junction region comprising a surface layer (21) of a first conductivity type overlying a photosensitive region of a second conductivity type (15); said photosensitive region overlying said active layer of said first conductivity type (col. 14, lines 1-65).

In addition, Nozaki et al. teaches forming an output transistor for reading out charge from the floating diffusion region, forming a read out circuit comprising at least the output transistor, and forming a photodiode (col. 14, lines 1-52). Nozaki discloses a pixel (Fig. 7) for receiving incident photo energy and converting it into an electrical signal; said pixel comprising: a photosensitive area (34a) for accumulating photo-generated charge; a floating diffusion region adjacent a side of said photosensitive region (figure 23) for receiving charge from said photosensitive area; a read out circuit comprising at least an output transistor (13a) for reading out charge from said floating diffusion region; an isolation region (STI) formed around a portion of said pixel; and an isolation gate (13b) formed over at least a portion of said isolation region (col. 2, lines 7-

65, col. 3, lines 1-65, col. 4, lines 1-65, col. 8, lines 3-65). Nozaki et al. teaches minimizing leakage, noise, and dark current (col. 8, lines 53-65, col. 11, lines 1-18).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 102-106 and 124-126 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nozaki et al. (US 6,570,222) in view of Casper (US 5,835,433).

Nozaki does not specifically show applying a voltage to the isolation gate, biasing the isolation gate to a constant voltage and reverse biasing said isolation region by applying said constant voltage. However, Nozaki describes it is expected that a CMOS image sensor operating at a power supply of 3.3 V or lower will be develop

Art Unit: 2822

according to the above description in order to decrease the size and power consumption of the solid state image device further (col. 2, lines 43-65, col. 3, lines 27-65). In addition, Casper is cited as evidence to show that biasing the isolation gate to a constant voltage and reverse biasing said isolation region by applying said constant voltage is part of the well known process of operating a sensing device (Abstract, col. 1, lines 45-67, col. 2, lines 30-67, col. 3, lines 25-67).

Therefore, it would have been obvious to a person of ordinary skill in the art would recognize that during operation the CMOS image sensor disclosed by Nozaki; the step of biasing the isolation gate would be included as suggested by Casper in order to operate the sensor as desired without providing timing inaccuracies and improving the performance of the elements (Casper, col. 1, lines 35-50; Nozaki, col. 3, lines 50-55).

Response to Arguments

5. Applicant's arguments filed September 20, 2005 have been fully considered but they are not persuasive. Claims 98-126 stand rejected. The rejection in view of Han et al. has been withdrawn.

Applicant argued that Nozaki does not teach or suggest forming an isolation gate. However, in abroad interpretation, a person of ordinary skill in the art would recognize that Nozaki shows forming the isolation gate (13b) over at least a portion of the isolation region (col. 2, lines 7-65, col. 3, lines 1-65, col. 4, lines 1-65, col. 8, lines 3-65).

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the isolation gate preventing charge from moving from one pixel to another, forming an isolation gate which is used to inhibit electron flow) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In response to applicant's argument that Casper is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, both references are in the field of forming and using sensing devices (Casper, Abstract, col. 1, lines 5-35, col. 2, lines col. 3, lines 25-67).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it would have been obvious to a person of ordinary skill in the art would recognize that during

Art Unit: 2822

operation the CMOS image sensor disclosed by Nozaki; the step of biasing the isolation gate would be included as suggested by Casper in order to operate the sensor as desired without providing timing inaccuracies and improving the performance of the elements (Casper, col. 1, lines 35-50; Nozaki, col. 3, lines 50-55).

Furthermore, "The use of patents as references is not limited to what the patentees describe as their own inventions or to the problems with which they are concerned. They are part of the literature of the art, relevant for all they contain." In re Heck, 699 F.2d 1331, 1332-33, 216 USPQ 1038, 1039 (Fed. Cir. 1983) (quoting In re Lemelson, 397 F.2d 1006, 1009, 158 USPQ 275, 277 (CCPA 1968)). A reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill the art, including nonpreferred embodiments. Merck & Co. v. Biocraft Laboratories, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989). See also Celeritas Technologies Ltd. v. Rockwell International Corp., 150 F.3d 1354, 1361, 47 USPQ2d 1516, 1522-23 (Fed. Cir.1998).

In addition, the transitional term "comprising", which is synonymous with "including," "containing," or "characterized by," is inclusive or open-ended and does not exclude additional, unrecited elements or method steps. See, e.g., > Invitrogen Corp. v. Biocrest Mfg., L.P., 327 F.3d 1364, 1368, 66 USPQ2d 1631, 1634 (Fed. Cir. 2003) ("The transition comprising' in a method claim indicates that the claim is open-ended and allows for additional steps."); < Genentech, Inc. v. Chiron Corp., 112 F.3d 495, 501, 42 USPQ2d 1608, 1613 (Fed. Cir. 1997) ("Comprising" is a term of art used in claim

Art Unit: 2822

language which means that the named elements are essential, but other elements may be added and still form a construct within the scope of the claim.); *Moleculon Research Corp. v. CBS, Inc.*, 793 F.2d 1261, 229 USPQ 805 (Fed. Cir. 1986); *In re Baxter*, 656 F.2d 679, 686, 210 USPQ 795, 803 (CCPA 1981); *Ex parte Davis*, 80 USPQ 448, 450 (Bd. App. 1948) ("comprising" leaves "the claim open for the inclusion of unspecified ingredients even in major amounts").

Furthermore, during patent examination, the pending claims must be "given *>their< broadest reasonable interpretation consistent with the specification." > In *re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000). While the claims of issued patents are interpreted in light of the specification, prosecution history, prior art and other claims, this is not the mode of claim interpretation to be applied during examination. During examination, the claims must be interpreted as broadly as their terms reasonably allow. > In *re American Academy of Science Tech Center*, F.3d, 2004 WL 1067528 (Fed. Cir. May 13, 2004)(The USPTO uses a different standard for construing claims than that used by district courts; during examination the USPTO must give claims their broadest reasonable interpretation.) < This means that the words of the claim must be given their plain meaning unless applicant has provided a clear definition in the specification. In *re Zletz*, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989) >; *Chef America, Inc. v. Lamb-Weston, Inc.*, 358 F.3d 1371, 1372, 69 USPQ2d 1857 (Fed. Cir. 2004). Therefore, the words in the claims have been given their plain meaning.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maria Guerrero whose telephone number is 571-272-1837.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zandra Smith can be reached on 571-272-2429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2822

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

December 1, 2005


MARIA F. GUERRERO
PRIMARY EXAMINER